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IN THE TREATMENT OF
PULMONARY CONSUMPTION.

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BOSTON POLYCLINIC.

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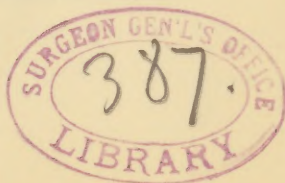
**THE COMPARATIVE IMPORTANCE OF DIFFERENT
CLIMATIC ATTRIBUTES IN THE TREATMENT
OF PULMONARY CONSUMPTION.¹**

By VINCENT Y. BOWDITCH, M.D.,
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IN offering my views upon this subject, I shall not presume, even were it possible in the limited time allowed, to give statistical evidence of the results of my own experience in the climatic treatment of phthisis. From the protracted nature of the disease satisfactory data can be given only after years of close observation of cases, and it is more with the hope of exciting discussion which shall lead to more thorough investigation of this most important subject than of giving new or valuable facts, that I have prepared this paper.

There can be no physician, I imagine, even of many years' experience, who does not feel, at times, a sense of helplessness when asked if a change of climate will be beneficial to his patient, and, if so, what climate shall be chosen. It is then that our

¹ Read at the meeting of the American Climatological Association, Washington, September 19, 1888.



lack of proper knowledge on the subject comes over us; it is then that the apparent difference of view, held by equally eminent authorities, makes us feel that the science of climatology is in its infancy only, and that from its very complexity it must have a slow growth.

In taking a broad survey of the different methods of climatic treatment in the last half century, we can say that, regardless of possible differences of detail in treatment of incipient phthisis, the modern method is strongly in favor of selecting cool or even cold invigorating climates by which the general system may be assisted in its efforts to resist disease, as opposed to the former custom of selecting the warmer, more debilitating regions with their generally depressing effects. Even when taking into consideration the greater attention paid now to hygienic matters, which has its favorable effect, yet the results of the modern method show it to be a decided step, in the right direction, for a large class of cases.

Let us now ask: "What in the opinion of eminent authorities are the most important attributes of a climate for the treatment of incipient phthisis?"

At the outset we must pause, being brought face to face with the fact that in all tabulations of results, the word phthisis covers a variety of pulmonary affections, and herein lies one of the chief difficulties of our coming to accurate and definite conclusions. By accepting the presence of this well-nigh insurmountable difficulty, and keeping it in mind, we can, nevertheless, draw general conclusions with

safety, and judge if the number grows less of those who die from wasting pulmonary diseases, be they of tubercular nature or otherwise, and, if so, what are the reasons of the decrease?

In Dr. Denison's admirable paper of last year, which gives us the key-note of the discussion to-day, he places at the head of the list the quality of *dryness* as opposed to *moisture*. Under this head we may include both dryness of the air and of the soil, and without discussing the question as to how these are largely dependent upon each other, it will be sufficient to say that the researches and opinions of many authorities justify Dr. Denison in placing this attribute at the head of the list.

The investigations of my father, about thirty years ago, as to the cause of consumption in Massachusetts, and shortly afterward, of Buchanan and Simon, in England, point most strongly to soil moisture as a cause of the disease, and, furthermore, show that removal from a damp soil to a dry one has frequently been followed by arrest of the disease. More recent researches in other regions (for instance, those of Dr. Pepper in Pennsylvania two or more years ago) have lead to the same result. Jaccoud, Hermann Weber, and others quoted by them, while they lay the greatest stress upon *altitude*, yet speak of the dryness of the air which accompanies a rarefied atmosphere and the rapid drainage of the soil due to elevation as most important factors in the cure of consumption.

Jaccoud, in his enthusiasm for *altitude* as the most important factor in the treatment of incipient

phthisis, lays much stress upon the mechanical effect of expansion, which residence in a rarefied atmosphere has, upon the human chest, and in this view he is supported by Hermann Weber, C.B.J., and C. Theodore Williams, Denison, Solly, and others, and from their observations there is little reason to doubt that the frequent and deep inspirations made by patients upon arriving in mountain regions, to obtain the requisite amount of oxygen from the rarefied air, tend to expand the chest and to dilate the collapsed or obstructed alveoli of a phthisical lung. The full-chested appearance of children in the mountainous regions of Colorado, as noticed by the two authors last named, goes to prove this fact.¹

Apart from the mechanical effect upon the chest, authorities very generally agree that in altitudes, properly selected, varying from 1500 to 8000 or 10,000 feet, we find a combination of attributes favorable to the cure of incipient phthisis, and in addition to the one already mentioned, viz., *dryness* of the atmosphere and soil, we have the advantage of a cool or cold bracing temperature, clearness and purity of the atmosphere, with a large percentage of sunshine.

¹ That these effects of altitude have a decidedly beneficial influence on the pulmonary condition there is little reason to doubt, even though Jaccoud persists in saying that the rarefaction of the air causes an *anæmia* of the lungs in conjunction with the other viscera, although other eminent authorities maintain that the lungs share with the skin the increased circulation due to removal of atmospheric pressure, which seems the more rational view. (Lubbock's translation of Jaccoud's "Curability and Treatment of Pulmonary Consumption," p. 293.)

While fully acknowledging the weight of the opinions of those who regard altitude as *one* of the most, if not *the* most important element in the climatic treatment of phthisis, yet I must confess to being as yet unwilling to accept this without reservations. It is doubtless true that we find, as Dr. Denison says, at certain high altitudes a greater number of what we now consider the most important attributes combined than in less elevated regions; but I think we must be guarded in accepting this, lest from the result of future investigations we find that we have gone too far in this direction.

With my present conviction that dryness of soil and atmosphere are the most important factors in the climatic treatment of phthisis, I am much struck by the experience of Dr. Geddings, who for many years has studied the climate of Aiken, in South Carolina, and the results of phthisical patients who have been sent there. The town is situated between 500 and 600 feet only above the level of the sea, not high enough to exert any special mechanical influence on the chest by rarefaction of the air (on which Jaccoud lays so much stress), yet the atmosphere and soil are both very dry, and the bracing quality of the air is a marked feature.

From the results which Dr. Geddings has noticed, and from the experience of a few patients with whose histories I am acquainted, I find myself questioning as to how far the element of altitude *per se* is necessary, and whether other regions resembling the position and climate of Aiken are not to be found, where equally favorable results can be expected. In this

connection, moreover, the facts spoken of by several authorities must not be lost sight of, viz., that in certain countries of decidedly low altitude there seems to be an entire immunity from phthisis; for instance, the Kirgheez, in Asiatic Russia, who live on vast steppes, one hundred feet below the sea-level, and the inhabitants of the Faroe Islands and of Iceland, living at a very slight elevation, and under the most unfavorable hygienic conditions, are nearly, if not entirely, free from the disease. So far as I know, these countries have never been used as health resorts for phthisical patients, but probably the depressing effects of living in such communities would far outweigh any possible benefit.

As to the attribute of temperature, or, in other words, *coolness* or *coldness*, as opposed to *warmth*, in the climatic treatment of phthisis, there can be little doubt that, in the majority of cases of incipient disease, the former has the more favorable effect. The good effects of a low temperature lie chiefly in its bracing quality, its tendency to cause dryness of the atmosphere, and its unfavorable influence on the growth of the bacillus outside the human body, a fact which, to those who believe in the theories of Koch, is of marked importance. (The contrary is true of warm, moist, relaxing climates.) The importance of clearness and purity of the atmosphere, with the presence of sunshine, is so self-evident that one need scarcely discuss it. The effect of the lack of these elements upon healthy human beings is sufficient proof of the necessity of their presence in the treatment of disease, more especially in phthisis.

In connection with the comparative importance of different climatic attributes, a word must be said as to the difference between seashore and inland climates. Of necessity, no general law can be laid down on this point, but the weight of opinion may be said to be distinctly in favor of dry, inland climates for the treatment of incipient phthisis. The shores of the Mediterranean are famous as health resorts for consumptives, and although, in the opinion of Jaccoud and Hermann Weber, they are inferior to the inland and mountainous climates, yet a residence in that region is doubtless of great benefit to many; the dryness of the atmosphere, and a large percentage of sunshine being two most noticeable features of the climate.

Opposed to the idea of preference being given to inland climates, is the fact that most of the health resorts for consumptives in England are situated near the sea, where the climate is decidedly moist, and soft. As to the results in the cure of phthisis in these places, compared with those in mountainous regions, I am unable to make any statement, but the preference shown by English physicians, in sending their patients to such dry, mountainous regions as Davos, in Switzerland, speaks strongly in favor of the latter resorts.

Speaking for New England, it can be said that, while exceptional cases may do well, the moist, harsh climate of our northern coast is distinctly bad for consumptives, and it is my custom, as it has been my father's for years before me, to advise removal from the coast, if only to retreat to some compara-

tively dry region eight or ten miles inland, where the rigor of our harsh, damp winds may be avoided. Very different are the effects of a sea voyage or its equivalent, residence upon an island several miles from the shore. The reason of this difference is not satisfactorily explained, but doubtless the purity of atmosphere, and absolute freedom from dust, have much to do with it. As a cure for phthisis, however, either method may be said to hold a decidedly secondary position.

By comparing these facts again, we find strong evidence in favor of the attribute of atmospheric dryness in the treatment of phthisis.

To state briefly my present views: I believe that properly selected altitudes possess a combination of climatic attributes which, according to our present knowledge, form the best means of cure for cases of incipient phthisis in which there are no symptoms that would contraindicate residence at a great height—*e. g.*, cardiac weakness, excitability of temperament, marked feverishness, or a pronounced emphysematous condition, all of which symptoms are, according to the authorities mentioned, apt to be unfavorably affected by altitude.

At the same time, I believe we have much to learn as to the possibilities of cure in less elevated regions, like Aiken, South Carolina, where the quality of dryness is present with a bracing atmosphere.

Still further, we have a great field before us in the investigation of the effect of residence in comparatively favorable regions near our homes, where, by the establishment of sanitariums, we can combine

climatic, hygienic, and medical treatment in such a manner that exile from home and family may not be thought, in the future, of such paramount necessity.

In accordance with my father's and my own custom of recommending, in certain cases, a residence in towns favorably situated within a few miles of Boston, I have, for some time, felt that much more could be accomplished by the establishment of sanitariums for phthisical patients in these regions. I determined to make the attempt to get some suitable institutions for those who cannot afford to go far away from home, in Sharon, Mass., a town situated between 300 and 400 feet above sea-level, about eighteen miles southwest of Boston. The soil is of a very porous nature, the atmosphere of a markedly dry, bracing character, pine forests abound, and a line of hills, moreover, shelter the town from our harshest winds. Through the generosity of one interested in the scheme, a farm favorably situated has been bought, and, relying upon the assistance of wealthy citizens of Boston, I hope, with the assistance of Dr. R. W. Lovett, to show, at some future time, that much can be accomplished in this way.

I was much pleased to find that Dr. Kretzschmar, of Brooklyn, several months ago, had called the attention of the profession in America to the gratifying results of Dettweiler, in his sanatorium at Falkenstein, in Germany; of Brehmer, at Görbersdorf, in Silesia; and other now well-known establishments, situated in not especially salubrious climates. The experience of these physicians in Europe, as well as that of Dr. Trudeau, in the Adirondacks, should

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give us reason to hope that, by means of similar establishments near our homes, even at a comparatively slight elevation above the sea, we can do a great deal toward arresting the present death-rate from pulmonary consumption.

I cannot conclude better than by quoting Hermann Weber, who, in the fourth division of his exhaustive work on climatology, says: "By erecting well-arranged establishments, under medical supervision, in well-situated places near at hand, a great many of the advantages of more distant climatic health resorts may be gained."

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